

# LINCOLN AIRPORT



F.A.R. Part 150 Noise Compatibility Study

Noise Exposure Maps

**LINCOLN AIRPORT**

**F.A.R. Part 150**

**Noise Compatibility Study**

**NOISE EXPOSURE MAPS**

**Prepared For**  
**The Lincoln Airport Authority**

**By**  
**Coffman Associates, Inc.**

**February 2003**

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# ONTENTS

## **LINCOLN AIRPORT Lincoln, Nebraska**

## **F.A.R. Part 150 Noise Compatibility Study**

## **Noise Exposure Maps**

### **NOISE EXPOSURE MAPS**

SPONSOR'S CERTIFICATION ..... viii

### **Chapter One INVENTORY**

JURISDICTIONS AND RESPONSIBILITIES .....	1-2
Federal .....	1-2
State And Local .....	1-8
Airport Proprietor .....	1-9

## **Chapter One (Continued)**

AIRPORT SETTING .....	1-10
Locale .....	1-10
Climate .....	1-10
AIRPORT HISTORY .....	1-11
AIRPORT FACILITIES .....	1-11
Airside Facilities .....	1-12
Landside Facilities .....	1-15
Other Facilities .....	1-15
AIRSPACE AND AIR TRAFFIC CONTROL .....	1-16
Airspace Structure .....	1-16
Enroute Navigational Aids .....	1-18
Area Airports .....	1-19
Instrument Approaches .....	1-19
Customary ATC And Flight Procedures .....	1-21
Existing Noise Abatement Procedures .....	1-22
STUDY AREA .....	1-23
EXISTING LAND USE .....	1-24
Noise-Sensitive Institutions .....	1-24
LAND USE PLANNING POLICIES AND REGULATIONS .....	1-25
Regulatory Framework .....	1-25
Comprehensive Plan .....	1-26
Zoning .....	1-28
Subdivision Regulations .....	1-36
Building Codes .....	1-37
Capital Improvement Program .....	1-37
SUMMARY .....	1-37
REFERENCES .....	1-39

## **Chapter Two**

### **AVIATION NOISE**

AIRCRAFT NOISE MEASUREMENT PROGRAM .....	2-2
Acoustical Measurements .....	2-2
Measurement Results Summary .....	2-6
AIRCRAFT NOISE ANALYSIS METHODOLOGY .....	2-7
INM INPUT .....	2-7
Airport And Study Area Description .....	2-7
Activity Data .....	2-8
Operations And Fleet Mix .....	2-9
Database Selection .....	2-9
Time-Of-Day .....	2-14
Runway Use .....	2-14

## **Chapter Two (Continued)**

Flight Tracks .....	2-15
Assignment Of Flight Tracks .....	2-16
Engine Maintenance Run-Ups .....	2-16
INM OUTPUT .....	2-17
2002 Noise Exposure Contours .....	2-17
Comparative Measurement Analysis .....	2-18
2007 Noise Exposure Contours .....	2-20
2022 Noise Exposure Contours .....	2-20
SUMMARY .....	2-21

## **Chapter Three**

### **NOISE IMPACTS**

LAND USE COMPATIBILITY .....	3-2
F.A.R. Part 150 Guidelines .....	3-2
NOISE COMPLAINTS .....	3-4
CURRENT NOISE EXPOSURE .....	3-5
Land Uses Exposed To 2002 Noise .....	3-5
Population Exposed To 2001 Noise .....	3-7
POTENTIAL GROWTH RISK .....	3-8
Population Projections .....	3-8
Residential And Noise-Sensitive Land Use Growth Risk .....	3-9
2007 NOISE EXPOSURE .....	3-10
Land Uses Exposed To 2007 Noise .....	3-10
Population Exposed To 2007 Noise .....	3-11
2022 NOISE EXPOSURE .....	3-12
Land Uses Exposed To 2022 Noise .....	3-12
Population Exposed To 2022 Noise .....	3-13
SUMMARY .....	3-14

## **EXHIBITS**

1	2002 NOISE EXPOSURE MAP .....	after page viii
2	2007 NOISE EXPOSURE MAP .....	after page viii
1A	LOCATION MAP .....	after page 1-10
1B	AIRFIELD FACILITIES .....	after page 1-12
1C	AIRSPACE CLASSIFICATION .....	after page 1-16
1D	AREA AIRSPACE .....	after page 1-16
1E	PUBLISHED INSTRUMENT APPROACHES .....	after page 1-20
1F	JURISDICTIONAL BOUNDARIES .....	after page 1-24

## **EXHIBITS (Continued)**

1G	GENERALIZED EXISTING LAND USE MAP .....	after page 1-24
1H	COMPREHENSIVE LAND USE PLAN .....	after page 1-28
1J	URBAN GROWTH TIERS WITHIN THE EXTRATERRITORIAL JURISDICTION .....	after page 1-28
1K	GENERALIZED ZONING MAP .....	after page 1-28
1L	AIRPORT ENVIRONS NOISE OVERLAY DISTRICT .....	after page 1-36
2A	NOISE MONITORING LOCATIONS .....	after page 2-4
2B	INM PROCESS .....	after page 2-8
2C	MILITARY AIRCRAFT NOISE FOOTPRINT COMPARISON .....	after page 2-10
2D	COMMERCIAL AIRCRAFT NOISE FOOTPRINT COMPARISON .....	after page 2-10
2E	GENERAL AVIATION AIRCRAFT NOISE FOOTPRINT COMPARISON .....	after page 2-10
2F	RADAR FLIGHT TRACK DATA .....	after page 2-16
2G	CONSOLIDATED DEPARTURE TRACKS .....	after page 2-16
2H	CONSOLIDATED ARRIVAL TRACKS .....	after page 2-16
2J	TOUCH-AND-GO HELICOPTER TRACKS .....	after page 2-16
2K	2002 NOISE EXPOSURE CONTOUR .....	after page 2-18
2L	MEASURED AND MODELED NOISE .....	after page 2-20
2M	2007 NOISE EXPOSURE CONTOUR .....	after page 2-20
2N	2022 NOISE EXPOSURE CONTOUR .....	after page 2-20
3A	LAND USE COMPATIBILITY GUIDELINES .....	after page 3-2
3B	ANNOYANCE CAUSED BY AIRCRAFT NOISE IN RESIDENTIAL AREAS .....	after page 3-4
3C	NOISE COMPLAINT HISTORY .....	after page 3-4
3D	2002 NOISE EXPOSURE CONTOUR WITH LAND USE .....	after page 3-6
3E	GROWTH RISK AREAS .....	after page 3-8
3F	2007 NOISE EXPOSURE CONTOUR WITH LAND USE .....	after page 3-10
3G	2022 NOISE EXPOSURE CONTOUR WITH LAND USE .....	after page 3-12
3H	NOISE EXPOSURE CONTOUR COMPARISON .....	after page 3-14

## **Appendix A**

### **WELCOME TO THE PLANNING ADVISORY COMMITTEE**

**Appendix B**  
**COORDINATION, CONSULTATION,**  
**AND PUBLIC INVOLVEMENT**

**Appendix C**  
**INM INPUT ASSUMPTIONS**  
**AND OUTPUT REPORT**

**TECHNICAL INFORMATION PAPERS**

GLOSSARY OF NOISE COMPATIBILITY TERMS  
THE MEASUREMENT AND ANALYSIS OF SOUND  
EFFECTS OF NOISE EXPOSURE  
MEASURING THE IMPACT OF NOISE ON PEOPLE  
NOISE AND LAND USE COMPATIBILITY GUIDELINES





## NOISE EXPOSURE MAPS

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## **NOISE EXPOSURE MAPS**

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This document is the Noise Exposure Map document prepared for Lincoln Airport.

The Noise Exposure Maps documentation for the Airport presents current aircraft noise impacts and anticipated impacts in five years. The documentation contains sufficient information so that reviewers unfamiliar with local conditions and the local public unfamiliar with the technical aspects of aircraft noise can understand the findings.

This Noise Exposure Maps document includes the first three chapters of the complete F.A.R. Part 150 Noise Compatibility Study. Chapter One, Inventory, presents an overview of the airport, airspace, aviation facilities, existing land uses, and local land use policies and regulations.

Chapter Two, Aviation Noise, explains the methodology used to develop aircraft noise contours. It also describes the key input assumptions used for noise modeling.

Chapter Three, Noise Impacts, presents existing and forecast aircraft noise exposure based on the assumption of no additional noise abatement efforts. This provides baseline data for evaluating potential noise abatement strategies in the second part of the study. It also analyzes the impact of the baseline aircraft noise on noise-sensitive land uses and the resident population.

Supplemental information is provided in appendixes and Technical Information Papers. Appendix A lists the members of the Planning Advisory Committee (PAC) that were consulted

throughout the planning process. It also includes an explanation of the role of the PAC in the process.

Appendix B, Coordination, Consultation and Public Involvement, summarizes the planning process, local coordination, and the public involvement process.

Appendix C contains the INM Assumptions and Output Report. This report provides detailed tables which depict reported aircraft operations, runway use, and day/nighttime operation split by aircraft type.

Five Technical Information Papers are provided for reference and background. These papers include the Glossary of Noise Compatibility Terms, The Measurement and Analysis of Sound, Effects of Noise Exposure, Measuring the Impact of Noise on People, and Noise and Land Use Compatibility Guidelines.

The official Noise Exposure Maps are presented in this section following page vii. For the convenience of FAA reviewers, the FAA's official Noise Exposure Map checklist is presented on pages iii through vi.

**AIRPORT NAME:** *Lincoln Airport  
Lincoln, Nebraska*

	Yes/No/NA	Page No./ Other Reference
<b>I. IDENTIFICATION AND SUBMISSION OF MAP DOCUMENT:</b> <b>A.</b> Is this submittal appropriately identified as one of the following, submitted under F.A.R. Part 150: 1. a NEM only? 2. a NEM and NCP? 3. a revision to NEMs which have previously been determined by FAA to be in compliance with Part 150?  <b>B.</b> Is the airport name and the qualified airport operator identified?  <b>C.</b> Is there a dated cover letter from the airport operator which indicates the documents are submitted under Part 150 for appropriate FAA determination?	  Yes No No  Yes  Yes	  Title Page, p. i   Title Page, p. i  p. viii
<b>II. CONSULTATION: [150.21(b), A150.105(a)]</b> <b>A.</b> Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?  <b>B.</b> Identification: 1. Are the consulted parties identified?  2. Do they include all those required by 150.21(b) and A150.105(a)?  <b>C.</b> Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?  <b>D.</b> Does the document indicate whether written comments were received during consultation and, if there were comments, that they are on file with the FAA region?	 Yes   Yes  Yes  Yes	 Appendix B; and supplemental volume, <i>Supporting Information on Project Coordination and Local Consultation</i>  Appendices A and B; and supplemental volume, <i>Supporting Information on Project Coordination and Local Consultation</i>  Appendices A and B; and supplemental volume, <i>Supporting Information on Project Coordination and Local Consultation</i>  p. viii; Appendix B, and supplemental volume, <i>Supporting Information on Project Coordination and Local Consultation</i>  Appendix B, and supplemental volume, <i>Supporting Information on Project Coordination and Local Consultation</i>

**F.A.R. PART 150  
NOISE EXPOSURE MAP CHECKLIST**

**AIRPORT NAME:** *Lincoln Airport  
Lincoln, Nebraska*

**REVIEWER:** \_\_\_\_\_

	Yes/No/NA	Page No./ Other Reference
<p>III. <b>GENERAL REQUIREMENTS: [150.21]</b></p> <p>A. Are there two maps, each clearly labeled on the face with year (existing condition year and 5-year)?</p> <p>B. Map currency:</p> <p>1. Does the existing condition map year match the year on the airport operator's submittal letter?</p> <p>2. Is the 5-year map based on reasonable forecasts and other planning assumptions and is it for the fifth calendar year after the year of submission?</p> <p>3. If the answer to 1 &amp; 2 above is no, has the airport operator verified in writing that data in the documentation are representative of existing condition and 5-year forecast conditions as of the date of submission?</p> <p>C. <b>If the NEM and NCP are submitted together:</b></p> <p>1. Has the airport operator indicated whether the 5-year map is based on 5-year contours without the program vs. contours if the program is implemented?</p> <p>2. If the 5-year map is based on program implementation:</p> <p>a. are the specific program measures which are reflected on the map identified?</p> <p>b. does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?</p> <p>3. If the 5-year NEM does not incorporate program implementation, has the airport operator included an additional NEM for FAA determination after the program is approved which shows program implementation conditions and which is intended to replace the 5-year NEM as the new official 5-year map?</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>	<p>See NEM Maps, Exhibits 1 &amp; 2 after p. viii</p> <p>Current year is labeled 2002, based on actual operations from May 2001 to April 2002. This is a fair representation of existing conditions. Based on the 12 months ending December 2002, total operations were 100,339, 1.9 percent less than the operations modeled for 2002. Air carrier/air taxi operations were 20,868, 0.1 percent less than the operations modeled for 2002.</p> <p>See 2007 NEM after p. viii; Chapter Two, p. 2-1, pp. 2-8 - 2-17</p>

**F.A.R. PART 150**  
**NOISE EXPOSURE MAP CHECKLIST**

**AIRPORT NAME:** *Lincoln Airport*  
*Lincoln, Nebraska*

**REVIEWER:** \_\_\_\_\_

	Yes/No/NA	Page No./ Other Reference
<b>IV. MAP SCALE, GRAPHICS, AND DATA REQUIREMENTS:</b> <b>[A150.101, A150.103, A150.105, 150.21(a)]</b>		
A. Are the maps sufficient scale to be clear and readable (they must not be less than 1" to 8,000'), and is the scale indicated on the maps?	Yes	See NEM Maps after p. viii
B. Is the quality of the graphics such that required information is clear and readable?	Yes	See NEM Maps after p. viii
C. Depiction of the airport and its environs.		
1. Is the following graphically depicted to scale on both the existing conditions and 5-year maps:		
a. airport boundaries?	Yes	See NEM Maps after p. viii
b. runway configurations with runway end numbers?	Yes	See NEM Maps after p. viii
2. Does the depiction of the off-airport data include:		
a. a land use base map depicting streets and other identifiable geographic features?	Yes	See NEM Maps after p. viii
b. the area within the 65 Ldn ( <b>or beyond, at local discretion</b> )?	Yes	See NEM Maps after p. viii
c. clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the 65 Ldn (or beyond, at local discretion)?	Yes	See NEM Maps after p. viii
D. 1. Continuous contours for at least the 65, 70, and 75 Ldn?	Yes	See NEM Maps after p. viii
2. Based on current airport and operational data for the existing condition year NEM, and forecast data for the 5-year NEM?	Yes	See 2007 NEM after p. viii; Chapter Two, p. 2-1, pp. 2-8 - 2-17
E. Flight tracks for the existing condition and 5-year forecast timeframes (these may be on supplemental graphics which must use the same land use base map as the existing condition and 5-year NEM), which are numbered to correspond to accompanying narrative?	Yes	Chapter Two, Exhibits 2F, 2G, 2H, and 2J after p. 2- 16
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map as the official NEMs)	Yes	Chapter Two, Exhibit 2A after p. 2-4
G. Noncompatible land use identification:		
1. Are noncompatible land uses within at least the 65 Ldn depicted on the maps?	Yes	See NEM Maps after p. viii
2. Are noise-sensitive public buildings identified?	Yes	See NEM Maps after p. viii

**F.A.R. PART 150  
NOISE EXPOSURE MAP CHECKLIST**

**AIRPORT NAME:** *Lincoln Airport  
Lincoln, Nebraska*

**REVIEWER:** \_\_\_\_\_

	Yes/No/NA	Page No./ Other Reference
3. Are the noncompatible uses and noise-sensitive public buildings readily identifiable and explained on the map legend?	Yes	See NEM Maps after p. viii
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	N/A	
<b>V. NARRATIVE SUPPORT OF MAP DATA: [150.21(a), A150.1, A150.101, A150.103]</b>		
A. 1. Are the technical data, including data sources, on which the NEMs are based adequately described in the narrative?	Yes	Chapter Two, pp. 2-7 - 2-17
2. Are the underlying technical data and planning assumptions reasonable?	Yes	Chapter Two, pp. 2-7 - 2-17
B. Calculation of Noise Contours:		
1. Is the methodology indicated?	Yes	Chapter Two, p. 2-7
a. is it FAA approved?	Yes	Chapter Two, p. 2-7
b. was the same model used for both maps?	Yes	Chapter Two, p. 2-7
c. has AEE approval been obtained for use of a model other than those which have previous blanket FAA approval?	N/A	
2. Correct use of noise models:		
a. does the documentation indicate the airport operator has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another?	No	Chapter Two, pp. 2-8 - 2-1. No calibrations done. Some composite aircraft descriptors used.
b. if so, does this have written approval from AEE?	N/A	All aircraft INM designators used are on AEE's pre-approved list of substitutions.
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	Yes	Our measurement program is discussed in Chapter 2 and can be described as a "survey type" program. Please see FAA AC 150/5020-1, Noise Control and Compatibility Planning for Airports, pp. 12-17. Our results indicate reasonable agreement between measurements and INM predictions. Where the measured values deviated from INM predictions, it was explained by operations differing from average annual conditions

**F.A.R. PART 150  
NOISE EXPOSURE MAP CHECKLIST**

**AIRPORT NAME:** *Lincoln Airport  
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	Yes/No/NA	Page No./ Other Reference
4. For noise contours below 65 Ldn, does the supporting documentation include explanation of local reasons? (Narrative explanation is highly desirable but not required by the Rule.)	Yes	Chapter Two, p. 2-17, Chapter Three, pp. 3-3 - 3-4, T.I.P., Noise and Land Use Compatibility Guidelines
C. Noncompatible Land Use Information:		
1. Does the narrative give estimates of the number of people residing in each of the contours (Ldn 65, 70, and 75 at a minimum) for both the existing condition and 5-year maps?	Yes	Chapter Three, pp. 3-7 - 3-8, pp. 3-11 - 3-12
2. Does the documentation indicate whether Table 1 of Part 150 was used by the airport operator?		Chapter Three, pp. 3-2 - 3-3
a. If a local variation to Table 1 was used;		
(1) does the narrative clearly indicate which adjustments were made and the local reasons for doing so?	N/A	
(2) does the narrative include the airport operators complete substitution for Table 1?	N/A	
3. Does the narrative include information on self-generated or ambient noise where compatible/noncompatible land use identification consider non-airport/aircraft sources?	No	
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?	N/A	
5. Does the narrative describe how forecasts will affect land use compatibility?	Yes	Chapter Three, pp. 3-5 - 3-10
VI. <b>MAP CERTIFICATIONS: [150.21(b), 150.21(e)]</b>		
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	Yes	Certification statements on NEM Maps and p. viii
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete?	Yes	Certification statements on NEM Maps and p. viii



## **SPONSOR'S CERTIFICATION**

The Noise Exposure Maps and accompanying documentation for the Lincoln Airport, including the description of consultation and opportunity for public involvement, submitted in accordance with F.A.R. Part 150, are hereby certified as true and complete to the best of my knowledge and belief. It is hereby certified that adequate opportunity has been afforded interested persons to submit views, data, and comments on the Noise Exposure maps and forecasts. It is further certified that the 2002 Noise Exposure Map and supporting data are fair and reasonable representations of existing conditions at the airport.

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Date of Signature

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John Wood, Executive Director  
Lincoln Airport Authority